

PCT

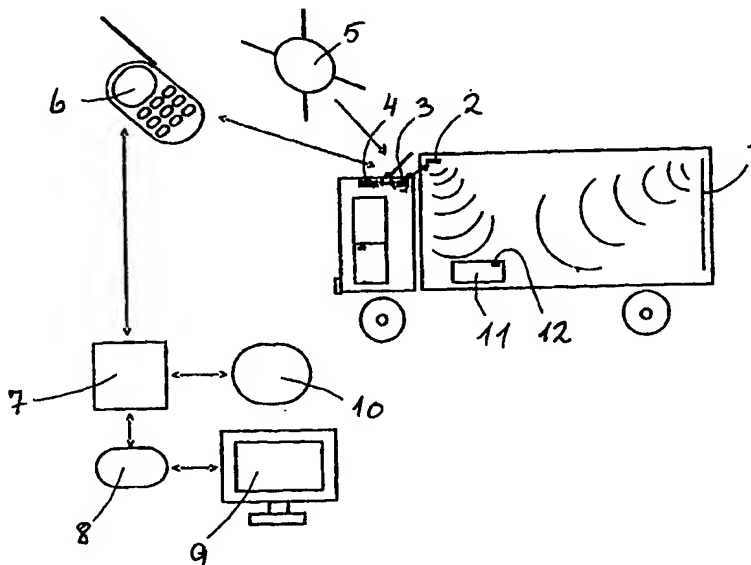
WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

| | | |
|---|-----------|--|
| (51) International Patent Classification ⁶ : G08G 1/127, G01S 5/00 | A1 | (11) International Publication Number: WO 99/33040 (43) International Publication Date: 1 July 1999 (01.07.99) |
| (21) International Application Number: PCT/NO98/00386 (22) International Filing Date: 18 December 1998 (18.12.98) (30) Priority Data: 19975999 19 December 1997 (19.12.97) NO (71) Applicant (for all designated States except US): TRANSPORTONLINE AS [NO/NO]; Boks 280, N-0614 Oslo (NO). (72) Inventors; and (75) Inventors/Applicants (for US only): FJELLBERG, Espen [NO/NO]; Hellvik, N-1450 Nesoddtangen (NO). TORP, Stein [NO/NO]; Jotunveien 10, N-1405 Langhus (NO). (74) Agent: TANDBERGS PATENTKONTOR AS; Boks 7085, N-0306 Oslo (NO). | | (81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i> |

(54) Title: **METHOD AND SYSTEM FOR SURVEILLANCE OF PORTABLE ARTICLES**



(57) Abstract

Method and system for geographic surveillance and control of portable articles, such as goods, containers etc., thereby registering articles being brought into or out of a transportation unit together with the information stored in a chip (12) secured to the article, and the geographical position of the transportation unit, to transmit the information through a global telecommunication network to a central processor, and to make the data stored in the central computer available for registered users from their personal computers through a global data network.

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

| | | | | | | | |
|----|--------------------------|----|--|----|--|----|--------------------------|
| AL | Albania | ES | Spain | LS | Lesotho | SI | Slovenia |
| AM | Armenia | FI | Finland | LT | Lithuania | SK | Slovakia |
| AT | Austria | FR | France | LU | Luxembourg | SN | Senegal |
| AU | Australia | GA | Gabon | LV | Latvia | SZ | Swaziland |
| AZ | Azerbaijan | GB | United Kingdom | MC | Monaco | TD | Chad |
| BA | Bosnia and Herzegovina | GE | Georgia | MD | Republic of Moldova | TG | Togo |
| BB | Barbados | GH | Ghana | MG | Madagascar | TJ | Tajikistan |
| BE | Belgium | GN | Guinea | MK | The former Yugoslav Republic of Macedonia | TM | Turkmenistan |
| BF | Burkina Faso | GR | Greece | ML | Mali | TR | Turkey |
| BG | Bulgaria | HU | Hungary | MN | Mongolia | TT | Trinidad and Tobago |
| BJ | Benin | IE | Ireland | MR | Mauritania | UA | Ukraine |
| BR | Brazil | IL | Israel | MW | Malawi | UG | Uganda |
| BY | Belarus | IS | Iceland | MX | Mexico | US | United States of America |
| CA | Canada | IT | Italy | NE | Niger | UZ | Uzbekistan |
| CF | Central African Republic | JP | Japan | NL | Netherlands | VN | Viet Nam |
| CG | Congo | KE | Kenya | NO | Norway | YU | Yugoslavia |
| CH | Switzerland | KG | Kyrgyzstan | NZ | New Zealand | ZW | Zimbabwe |
| CI | Côte d'Ivoire | KP | Democratic People's Republic of Korea | PL | Poland | | |
| CM | Cameroon | KR | Republic of Korea | PT | Portugal | | |
| CN | China | KZ | Kazakstan | RO | Romania | | |
| CU | Cuba | LC | Saint Lucia | RU | Russian Federation | | |
| CZ | Czech Republic | LI | Liechtenstein | SD | Sudan | | |
| DE | Germany | LK | Sri Lanka | SE | Sweden | | |
| DK | Denmark | LR | Liberia | SG | Singapore | | |
| EE | Estonia | | | | | | |

METHOD AND SYSTEM FOR SURVEILLANCE OF PORTABLE ARTICLES

The present invention is related to a system for geographical surveillance and control of portable units.

5 Systems have been developed to survey for example the localization of lorries from the transportation company. Such systems normally have coded data for specific lorries arriving at specific geographical places or having left such. Furthermore, data have been added with planned arrival times, such times
10 however have not been updated in relation to expected real arrival times.

With known developments attempts have been made to achieve an all over view of the positions for specific vehicles, but not for the single article being transported.

15 With the surveillance system according to the present invention, complete overview is ensured as to where specific articles are geographically. This is achieved with the surveillance system according to the present invention as defined with the features stated in the claims.

20 The drawing discloses schematically parts of the invention. Units or articles being controlled can be articles being transported, e.g. goods of different types as single expeditions, containers or other types of units. It also may be different vehicles, cars or trailers.

25 The object of the system according to the invention is at any time to find the real position for the single units in relation to known geographic localities, also in relation to stores, terminals, possibly also persons.

On each single unit to be transported, a chip* 12 is
30 secured, following the unit to the destination. The chip 12 comprises a microprocessor having memory, antenna and battery as well as a transmitter and receiver adapted for microwaves. The chip 12 is adapted to store in the memory information and further, the stored information may be amended through the
35 receiver on the chip 12 if desired. The chip also may be produced as passive chip 12 without transmitter and battery.

As principally disclosed in the drawing, an article unit 11 is moved through the opening of the lorry. The movement is registered by an antenna 1 enclosing the opening of the lorry,

A registration unit 2 transmits the registrations of the antenna 1 to a computer device 3 adapted for information from the antenna. A processor 4 computes the information from the unit 3, takes down the instant position at any time from the global
5 positioning system, GPS.

The antenna is equipped with two infrared beams covering the entrance portion at a distance from each other. When these beams are broken, it simultaneously is registered whether the article is brought in or out of the vehicle. Simultaneously
10 the same is given to a high frequency transmitter to register the information in the chip 12 being secured to the article which at that moment is moved in such a way that the infrared beams are broken.

The microprocessor 4 may be programmed to transmit
15 information upon predetermined frequencies or times, or on request. The transmission of information from the data processor 4 preferably is performed through the global mobile telephone system GSM, to a database 10 in a server 7.

The server 7 preferably also is server in a global
20 computer network, such as an internet connection 8 in such a way that authorized users through their computers or personal computers 9 can acquire information as to where specific units 11 are at anytime. By development the server may extend this service also to displaying a local map together with relevant
25 information as to the location as to where the transportation is going on at the moment.

The transportation unit on the drawing discloses a lorry, but as such is principally may be any transportation unit such as train, boat etc. or a storing unit, such as a store, a
30 terminal etc.

When the article 11 is taken out of the lorry, the antenna 1 will register this and transmit the message that the article 11 is taken out of the system.

By the start of the transportation all data connected
35 to the article 11 are put into the database connected to the specific chip 12 which is recognized by a unique reference number. This information may, in those countries where this is possible, be used as freight and custom papers, thereby ensuring and simplifying clarifications.

The data chips 12 suitably also may be reprogrammed from a user through GSM to the internal radio transmitter of the transportation unit. This may be necessary for example when changes arise or misunderstandings may arise in specific
5 countries as to the stored information.

The system according to the invention suitably also may be used in connection with storing of units, as the units 11 are registered when they are brought into a store and once again registered when they are brought of it. The antenna 1 in this
10 connection may be arranged around the entrances of the stores or terminals.

15

20

25

30

35

P a t e n t C l a i m s

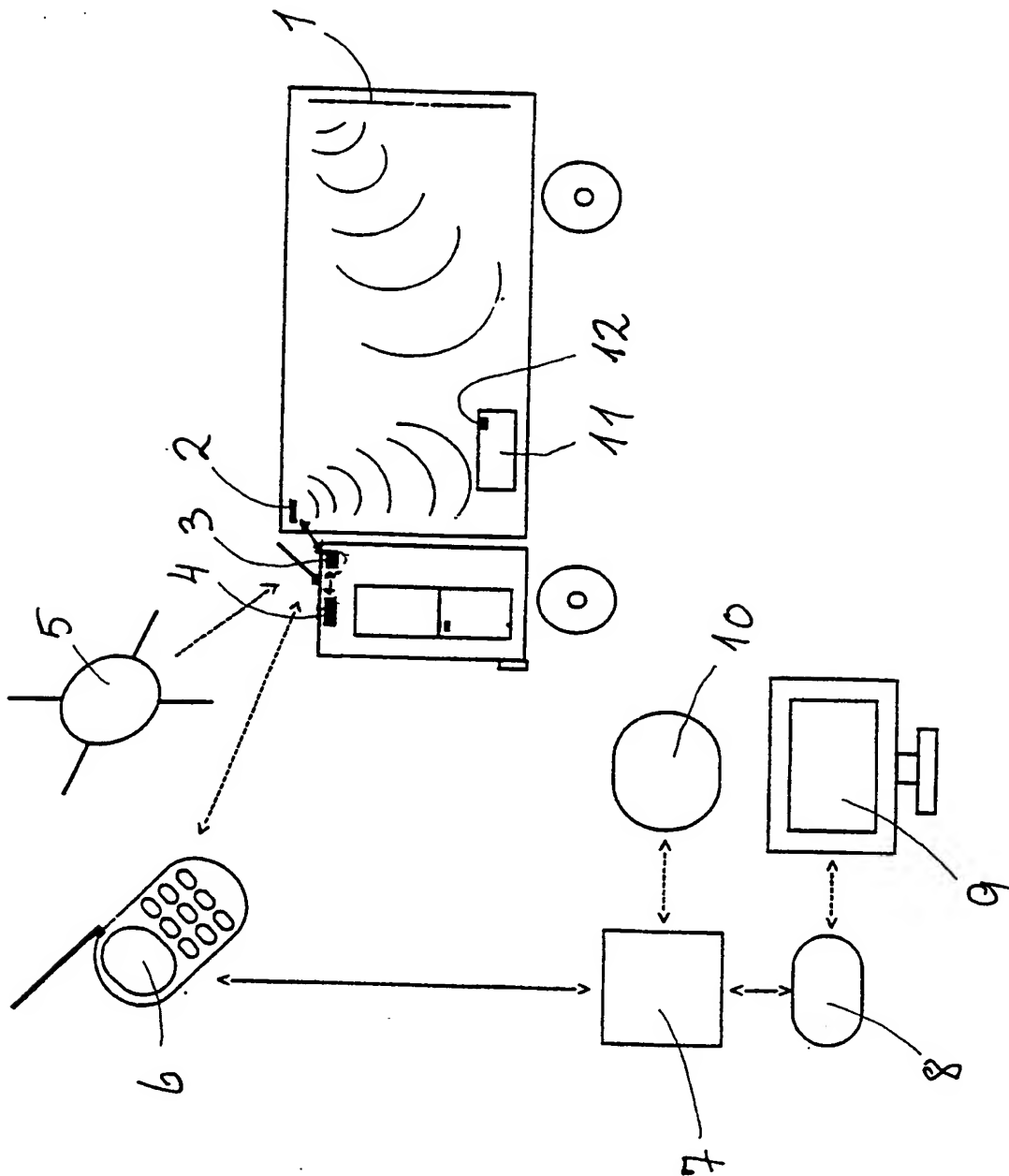
1. Method for geographic surveillance and control of
5 portable articles, such as goods, containers etc, **CHARACTERIZED**
IN registering articles being brought into or out of a transportation unit together with the information stored in a chip (12) secured to the article, and the geographical position of the transportation unit, to transmit the information through a global
10 telecommunication network to a central processor, and to make the data stored in the central computer available for registered users from their personal computers through a global data network.

2. Method according to claim 1, **CHARACTERIZED IN** the
15 data chips (12) being programmable through the central computer.

3. System for geographic surveillance and control of portable articles, such as goods, containers etc, **CHARACTERIZED**
IN any transportation unit connected included in the system comprising an antennae (1) surrounding the entrance and the
20 transportation unit, adapted to register if an article is brought in or out of the unit and to activate a radio transmitter in the unit to register signals from a data chip (12) secured to the article and to connect these data to the position data of the transportation unit from a global positioning system and to
25 transmit all data to a central data processor through a global mobil communication system, and that the data processor being adapted for communication with users through their personal data computers through a global data network.

30

35



INTERNATIONAL SEARCH REPORT

International application No.

PCT/NO 98/00386

A. CLASSIFICATION OF SUBJECT MATTER

IPC6: G08G 1/127, G01S 5/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC6: G01S, G08G

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPI

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|-----------|---|-----------------------|
| Y | DE 19504733 A1 (SIEMENS AG), 8 August 1996 (08.08.96), see the whole document -- | 1,3 |
| Y | DE 4213110 A1 (SCHMIDTCHEN, KARL-HEINZ), 28 October 1993 (28.10.93), see the whole document -- ----- | 1,3 |

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"I" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

17 May 1999

Date of mailing of the international search report

18 -05- 1999

Name and mailing address of the ISA/
 Swedish Patent Office
 Box 5055, S-102 42 STOCKHOLM
 Facsimile No. +46 8 666 02 86

Authorized officer

Göran Magnusson

Telephone No. +46 8 782 25 00

INTERNATIONAL SEARCH REPORT
Information on patent family members

03/05/99

International application No.
PCT/NO 98/00386

| Patent document cited in search report | Publication date | Patent family member(s) | Publication date |
|---|---------------------|----------------------------|---------------------|
| DE 19504733 A1 | 08/08/96 | NONE | |
| DE 4213110 A1 | 28/10/93 | NONE | |

THIS PAGE BLANK (USPTO)